MODIFIED PTO/SB/33 (09-08)
Approved for use through 10/31/2008. OMB 0651-0031

PRE-APPEAL BRIEF REQUEST FOR REVIEW

		Docket Number Q92714
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on _____	Application Number 10/565,823	Filed January 25, 2006
	Confirmation Number: 9638 First Named Inventor Hiroshi KANETA	
Signature Typed or printed name	Art Unit 1732	Examiner LI, JUN

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

☑ The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☑ attorney or agent of record. Registration number 61,444

☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

/ Michael G. Raucci /
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July 6, 2011
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 form is submitted.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Hiroshi KANETA**

Application No.: **10/565,823**

Filed: **January 25, 2006**

For: **LITHIUM ION SECONDARY BATTERY**

Attorney Docket No: **Q92714**

Confirmation No.: **9638**

Group Art Unit: **1732**

Examiner: **Li, Jun**

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MAIL STOP AF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the Pre-Appeal Brief Conference Program, and the Examiner's Final Office Action dated January 6, 2011, Appellant files this Pre-Appeal Brief Request for Review.

The Present Claims are Fully Supported by the Description of the Application

Claims 16-19 were rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement.

Appellant traverses. Claims 16 and 18 recite that the thickness of the negative electrode active material is substantially the same on both sides of the negative current collector. Claims 16 and 18 find full written description support in the specification, and claims 17 and 19 respectively depend therefrom. The Examiner does not question the support of claims 17 and 19.

Support for claims 16 and 18 is expressly found in the working Example of the present application. In Example 1, at pages 21-23 of the specification, the active material layers were formed on both sides of the current collector in a similar way. Specifically, at page 23, lines 5-6, the specification describes, with respect to the negative current collector, that "[i]n the similar way, the slurry was applied onto the other surface, and dried in vacuum.") Thus, it is clear that the thickness of the active material would be substantially the same on both sides of the negative

current collector. **Accordingly, Example 1 conveys with reasonable clarity to those skilled in the art that Appellant was in possession of the subject matter of Claims 16 and 18, and the Examiner's position to the contrary is in error.**

In addition, the specification clearly discloses at page 14, lines 4-8, for example, that:

> For electrodes disposed on the outermost part of the laminate, since no facing electrodes exist outside them, an electrode provided with an active material layer only on a surface facing inward can be used. In this case, it clear that the thickness of the active material layer can be 1/2 the above-described range.

In other words, the thickness of the active material layer formed on one side of the current collector is half of the total thickness of the active material layer formed on both sides of the current collector. Therefore, persons skilled in the art would readily appreciate that the thickness of the negative and positive electrode active materials on both sides of the negative and positive current collectors is substantially the same.

Further, the above-noted descriptions of the active material formed on both sides of the current collector is supported by the drawings. For example, FIG. 1 does not contradict that the active material layers on both sides of current collector have substantially same thickness.

In view of the above, Appellant respectfully requests the Pre-Appeal Panel to reconsider and withdraw the rejection of claims 16-19 under 35 U.S.C. § 112, first paragraph.

The Present Claims are Patentable over the Applied References

Claims 1-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanjou (US 2003/0215702) in view of Yomashita (US 6,287,720), Yoshida (US 6,291,102), Nakai (US 2002/0102460) and Shimamura (US 2003/0113621).

Appellant traverses. The applied art references do not render the claims unpatentable, because eve if the teachings of the references were combined as the Examiner asserts, all of the limitations of the claims would not be satisfied. In particular, the combination fails to suggest the following combination of features and the superior results obtained thereby:

(a) an amorphous carbon is employed having an average particle size of 5 to 10 μm as a negative electrode active material;

(b) the thickness of the negative electrode excluding the current collector is 30 to 100 μm;

(c) the negative electrode active material layers is formed on both sides of the current collector;

(d) the thickness of the current collector is 10% or more of the thickness of the negative electrode excluding the current collector; and

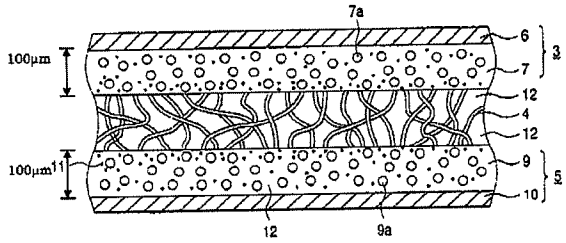
(e) the positive electrode terminal and the negative electrode terminal respectively satisfy the formula $B/A \geq 0.57$.

The Examiner alleges in the paragraph bridging pages 7-8 of the Office Action that:

> Yoshida already suggests a lithium secondary battery with improved charge and discharge efficiency, increased energy density and reduced thickness is always desired (col. 3, lines 28-38; col. 8, lines 1-13, Abstract). It would have been obvious for one of ordinary skill in the art at the time of invention filed to obtain a lithium secondary battery with high energy output as recited in the instant claims via routine optimization.

However, Yoshida only discloses at column 3, lines 28-30 that "[t]his structure has the effect that a firm housing is no longer necessary, which makes it feasible to reduce the weight and thickness of a battery." Further, in col. 8, lines 1-13, Yoshida clearly discloses "a coating thickness of about 100 μm." As shown in FIG. 4 of Yoshida, reproduced below, positive and negative active material layers **7** and **9** are formed only one side of positive and negative current collectors **6** and **10**, respectively, and there is no teaching or suggestion in Yoshida that active material layers are formed on both sides of the current collector.

FIG. 4



In light of the above, **Yoshida does not teach or suggest that the thickness of the active material layer should be reduced to reduce the thickness of a battery, and the Examiner's contrary statement is in error.**

Yoshida generally discloses that an amorphous carbon may be used as the negative electrode active material. However, with regard to the thicknesses of the current collector and active material layer, graphite (Mesophase Microbead Carbon) was employed in Examples 1 and 4 and the Comparative Example. Graphite is a crystalline carbon and is not amorphous.

According to the present claims, the active material layers are formed on both sides of the current collector. Therefore, even if one side of the active material layer substantially thins, the thickness will at least be thicker than the particle size of the active material. For example, the upper limit of the negative electrode thickness excluding the negative current collector is 100 μm and the lower limit of particle size of the negative electrode active material is 5 μm. Therefore, one of the negative electrode active material layers will be thicker than 5 μm and the other will be thinner than 95 μm. However, despite this extreme example, the active material layers on both sides of the current collector are usually formed in substantially same thickness, as recited in claims 16-19.

An objective of certain embodiments of the present claims is to make a high output lithium ion battery. With a current flow of "active material layer - current collector - electrode terminal," the thinner active material layer can reduce the internal resistance so that the higher capacitive current can be effectively flowed out. This effect would not have been obvious from Yoshida. Further, the designed terminals of the positive and negative electrodes can reduce the current loss in the above current flow and effectively release heat generated in the battery to outside. Thus, a lithium ion secondary battery having a 10-second output value of 3000 W/kg or above at a depth of discharge capacity of 50% and 25°C can be achieved by the specific parameters defined in claim 1, and this battery can reduce the internal heat reservation. **These features are not suggested by the Examiner's combination of references**.

As shown in Comparative Example 1 of the present application, when the thicknesses of the positive and negative electrode excluding the current collector are 130 and 120 μm, respectively,

the 10-second output value of 3000 W/kg or above was not achieved. Therefore, the claimed language "the lithium ion secondary battery has a 10-second output value of 3000 W/kg or above at a depth of discharge capacity of 50% and 25°C" excludes the structure in Comparative Example 1.

Nakai relates to a winding type secondary battery. Although Nakai discloses a positive current collector thickness of 20 μm, a positive active material layer thickness of 109 or 90 μm, a negative current collector thickness of 10 μm, and a negative active material layer of 70 or 79 μm, there is no description or suggestion regarding the particle size of the positive or negative electrode active material. On the other hand, Nakai discloses a separator thickness of 40 μm in paragraph [0023], which is outside of the range of the present claims. As demonstrated in Comparative Example 2 of the present application, **even if the positive and negative electrodes are fabricated within the range of the present claims, the 10-second output value of 3000 W/kg or above could not be achieved when the battery is formed in such a winding type.**

As shown above, in the absence of hindsight, one of ordinary skill in the art would not have combined parts of the different references to arrive at the specific features of the present claims. There is no guidance in the references or the general knowledge of persons skill in the art to combine the references in the manner asserted by the Examiner.

In view of the above, Appellant respectfully requests the Pre-Appeal Panel to reconsider and withdraw the rejection over Tanjou, Yamashita, Yoshida, Nakai and Shimamura.

Respectfully submitted,

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